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ABSTRACT

According to government guidelines an employer must not maintain personnel practices that show adverse impact. Because selection cases are the most common, they have set the standards for how adverse impact is typically determined. The most common way to demonstrate adverse impact is to show that the proportion of minorities hired is less than what is expected based on their availability. Further, it may mask the positive effects of strong affirmative action policies. Selection and termination ought not to be separated in evaluating a company's affirmative action policy. Who is hired affects who gets fired. To judge a company's termination practices, one must first ask questions about the company's hiring practices. If the company gives more minorities a chance by having separate cut-offs for minorities, it is inevitable that a larger percentage will fail. The more valid the selection procedure, the more dramatic this effect. An employer might be able to mitigate this result somewhat by better training and support for hired minorities, but the link between giving people a chance and their likelihood of failure is a statistical fact. (Author/ABL)

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SUMMARY

The Effects of Differential Selection Cut-offs on Termination

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According to the EEOC 1978 guidelines, an employer must not maintain personnel practices that show adverse impact. Because selection cases are the most common they have set the standards for how adverse impact is typically determined. The most common method to demonstrate adverse impact is to show that the proportion of minorities hired is less than what is expected based on their availability. For example, if 25% of qualified applicants are black, one would expect 25% of hires to be black. The same model has been used for termination. If minorities comprise 25% of the workforce, they should comprise 25% of the terminations. On the face, this seems entirely fair. We argue, however, that under certain circumstances, this method of determining adverse impact can violate standards of fairness. Further, it may mask the positive effects of strong affirmative action policies.

Assuming that qualifications, talent, motivation, etc. are normally distributed among both minorities and whites, the employer who hires a higher proportion of minority applicants will consequently hire more lower quality minority applicants. This is

not because minorities are less qualified; it is because the below-average minorities are less qualified than the above-average whites.

To see how job performance affects the picture, we can use the four-quadrant model. This shows that the number of minorities who will be terminated necessarily increases when more "marginal" minorities are hired (those who score lower on the selection criteria). If an employer hires high risk people, more of them are bound to fail. (But happily, some of them also succeed!) If standards for whites are higher (i.e., "risky" whites are not hired), the number of whites in the termination quadrant will remain small. One way to lower the number of minority terminations would be to tighten selection criteria for minorities. This move would unfortunately have the very negative consequence of increasing the number of minorities who COULD DO the work but were not given the opportunity. The result is an interesting dilemma: should the company give more minorities a chance and have more minority failures or give fewer minorities a chance and have fewer minority failures? Since a hiring policy that gives minorities more opportunity can result in a large termination quadrant, we suggest evaluating a company's termination in the context of their hiring. This means considering how small their "could have been successful" quadrant is.

Expected values can be calculated to take into account differential selection cut-offs using the Taylor Russelll Table (1939). We present a modified version of that table for use in calculating expected terminations when differential hiring rates are used.

The Effects of Differential Selection Cut-offs on Termination

According to the EEOC 1978 guidelines, an employer must not maintain personnel practices that show adverse impact toward minority groups. This is the case no matter what personnel practice is considered. Because selection cases are the most common, however, they have set the standards for how adverse impact is typically determined. The most common method to demonstrate adverse impact is to show that the proportion of minorities hired is less than what is expected based on their availability. For example, if 25% of qualified applicants are black, one would expect 25% of hires to be black. The same model has been used for termination. If minorities comprise 25% of the workforce, they should comprise 25% of the terminations. On the face, this seems entirely fair. It assumes that there is no reason for minorities to be discharged at a higher rate than nonminorities. We want to argue, however, that under certain circumstances, this method of determining adverse impact can violate standards of fairness. Further, it may mask the positive effects of strong affirmative action policies.

For the purpose of example, let us say that XYZ company is comprised of 200 workers: 100 whites and 100 blacks, or 50% white and 50% black. If the company were intending to cut its workforce by 20% or 40 workers, the standard model assumes, in the absence of discrimination, that 50% of the discharges would be white and 50% of the discharges black. If the company were to discharge a significantly higher proportion of blacks, most people would say their termination policy showed adverse impact. If this happened, then

the burden of proof shifts to the company to show that there was actually a legitimate reason for the discrepancy in termination, other than discrimination.

This method of showing adverse impact hinges on the calculation of the expected value. An expected value is that value one would expect if chance alone is operating. In this case, the expected value is equal to the proportion of blacks in the workforce (.5) times the number of people terminated (40), which equals 20. We will argue that there is an alternative, and superior, method of determining the expected number of minority terminations. This method involves an examination of the overall picture of company hiring and firing practices. We believe this can be a more fair way of viewing minority discharges when the employer has had a good record of hiring minorities.

This example came from a discrimination suit against a large grocery store chain in a southern city, where the proportion of blacks and whites was approximately even. The percentage of discharges who were black was greater than the percentage of blacks in the company. Whites, in contrast, had been terminated at a lower percentage than their percentage in the company. According to the standard method of showing adverse impact, this company's actions clearly had adverse impact. The company, however, believed themselves to have fair practices. The employer had used lower selection criteria for selecting blacks then for selecting nonblacks. This resulted in hiring almost 90% of the blacks who applied. On the other hand, the selection criteria for whites were higher; consequently only about 50% of white applicants were hired. The

grocery store industry in the same area had, on the other hand, hired only around 15% of black applicants and almost 90% of white applicants. In other words, looking at selection, the company charged with discrimination looked much better than their competitors.

Assuming that qualifications, talent, motivation, etc. are normally distributed among both blacks and whites, the employer who hires almost 90% of black applicants will consequently hire more lower quality applicants. Figure 1 shows a normal curve where applicants would be rated on some kind of qualifications measure. Those with low qualifications fall toward the left; those with higher qualifications fall more to the right. The hump of the curve represents the bulk of the people--those who are in the average range in terms of their qualifications. The top figure shows what happens if the employer selects the top 50% of 100 white applicants. The 50 employees hired are average or better than average. The bottom figure shows what happens if the employer selects the top 90% of 56 black applicants. The result will be that some below average employees will be included in the 50 hires. Those below average employees have a higher probability of failing. Notice that this is not because blacks are less qualified; it is because the <u>below-average</u> blacks are less qualified than the <u>above-average</u> whites.

INSERT FIGURE 1 ABOUT HERE

To see how job performance affects the picture, we can use the four-quadrant model. Figure 2 shows the hypothesized relationship between the qualifications of applicants and job performance. The

ellipse represents the people applying for a job at the grocery store. We could represent each applicant with a dot where their score on the qualifications scale intersects with their job performance score. We see that applicants with better qualifications tend to be better workers and applicants with lower qualifications can be expected to perform at a lower level. When a company wishes to hire employees they in effect draw a cutoff point along the qualifications scale (the vertical line). A company discharges employees who fall below an acceptable level of performance (the horizontal line). The two cut-off lines are pictured in figure 2. Quadrant one contains the applicants who were hired and actually could do the required work. These are known as true positives because they were hired and they actually succeeded in their work. Quadrant two contains those applicants who could actually do the work, but were not hired because of the selection criteria set. These people are referred to as false negatives, and we have labelled them "could have been successful." The next quadrant (three) contains all those who applied but who were rejected and rightfully so because they could not have performed adequately. These people are known as true negatives. The last quadrant, the fourth, contains all those who applied and were hired; however, they were not successful in the work. These are the people terminated.

INSERT FIGURE 2 ABOUT HERE

The top figure shows what happens with a 50% selection rate. What the grocery store did was reduce the possibility that a black might end up in the "could have been successful" quadrant by hiring

almost every black who applied. The top figure shows the selection cut-off drawn to represent the 90% selection rate. As can be easily seen, the bottom figure has a much smaller area in the "could have been successful" quadrant. But the problem with this is that quadrant two is directly tied to quadrant four; as one increases in size, the other decreases and vice versa. The number of blacks who will be terminated necessarily increases when more "marginal" blacks are hired (those who score lower on the selection criteria). If an employer hires high risk people, more of them are bound to fail. (But happily, some of them also succeed!) Because standards for whites were higher (i.e., "risky" whites were not hired), the number of whites in the termination quadrant remained small. One way to lower the number of black terminations would be to tighten selection criteria for blacks; that is, move the vertical line to the right. This move would unfortunately have the very negative consequence of increasing the number of blacks who COULD DO the work but were not given the opportunity. The result is an interesting dilemma: should the company give more blacks a chance and have more black failures or give fewer blacks a chance and have fewer black failures? This company had opted to give more blacks a chance, feeling good about those who would succeed. Now they were being held responsible for those high-risk hires who failed.

Should a company be evaluated by how small their termination quadrant is or by how small their "could have been successful" quadrant is? In the standard method of calculating adverse impact for termination, the company is being evaluated by their termination quadrant, without considering the size of their "could have been

successful" quadrant. Since a hiring policy that gives minorities more opportunity can result in a large termination quadrant, we suggest evaluating a company's termination in the context of their hiring. This means considering how small their "could have been successful"quadrant is.

Statisticians (e.g., Campbell,1976) have long been aware of this relationship between giving marginal applicants a chance and higher termination rates. Unfortunately, in termination cases, expected values are not calculated to take into account differential selection cut-offs. They can, however, be easily calculated using the Taylor Russelll Table (1939). To calculate the expected percentage of employees fired, you first have to know the correlation between your selection device and performance on the job, otherwise known as a validity coefficient. You must also know the selection rates of applicants who are hired from each group of applicants (e.g. % of black applicants and % of white applicants). With this information and the discharge rate (the percentage of employees who are discharged), it is possible to determine the expected percentage of terminations for each group of employees. Table 1 shows an adaptation of the Taylor Russelll table. (The Taylor Russell table is given in terms of expected success; we have adapted it for expected failures.) For example let us say that a company with half black and half white employes hires 100 blacks and 100 whites. If the overall discharge rate is 40 %, and r = .3, then by examining the table we can see that the expected number of black terminations among the 100 newly hired is 38% or 38 individuals, and the expected number of white terminations is 31. The standard expected value calculation

would have given us 34.5 blacks and 34.5 whites expected if 69 of the new group had been terminated. We believe the calculation based on the Taylor Russelll table is more accurate since it takes into account the effects of differential selection rates.

In conclusion, we have shown that selection and termination ought not be separated in evaluating a company's affirmative action policy. Who is hired affects who gets fired. To judge a company's termination practices, one must first ask questions about the company's hiring practices. If the company gives more minorities a chance by having separate cut-offs for minorities, it is inevitable that a larger percentage will fail. Glancing at Table 1 shows that the more valid the selection procedure, the more dramatic this effect. An employer might be able to mitigate this result somewhat by better training and support for hired minorities, but the link between giving people a chance and their likelihood of failure is a statistical fact.

References

Campbell, J.P. (1976). Psychometric theory. In Dunnette, M. (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally.

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Table 1.

Expected percent of terminations under different discharge rates, validity coefficients, and selection rates.[1]

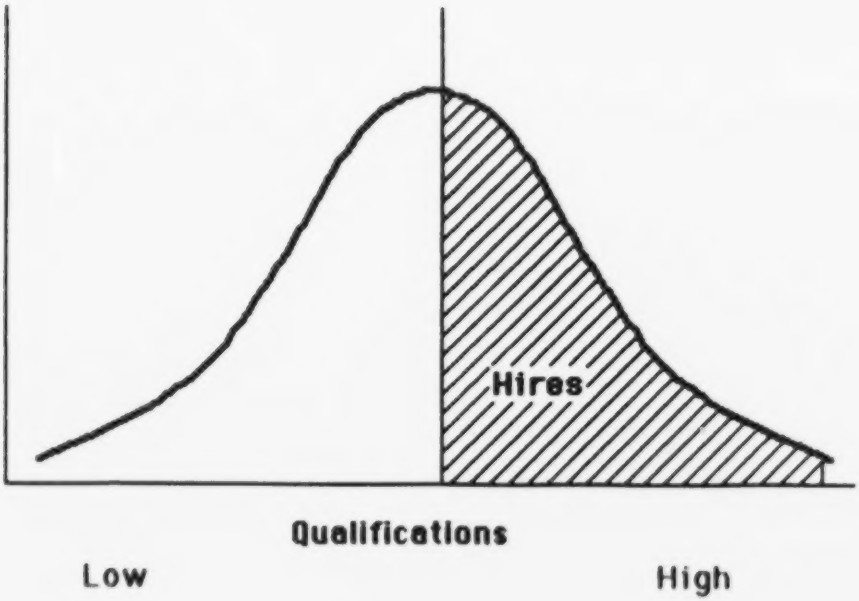
Discharge rate	r	selection rates Black	White	Expected % of terminations Black	White
10%	.20	90%	50%	9%	7%
	.30			9%	6%
	.40			8%	5%
	.50			8%	3%
20%	.20	90%	50%	19%	16%
	.30			18%	13%
	.40			17%	11%
	.50			16%	9%
30%	.20	90%	50%	29%	24%
	.30			28%	22%
	.40			27%	19%
	.50			26%	16%
40%	.20	90%	50%	38%	34%
	.30			38%	31%
	.40			37%	27%
	.50			36%	24%
50%	.20	90%	50%	48%	44%
	.30			48%	40%
	.40			47%	37%
	.50			46%	33%

[1] Adapted from Taylor, H.C. & Russelll, J.T. (1939). The relationship of validity coefficients to the practical effectiveness of tests in selection: Discussion and tables. Journal of Applied Psychology, 23, 565-578.

Figure 1

Normal Curve

100 white applicants hire 50%



56 black applicants hire 90%

Figure 2 Differential Selection rates.